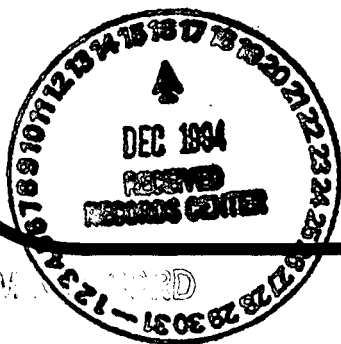


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ENVIRONMENTAL RESTORATION PROGRAM

Monthly Report For

July, 1992



August 20, 1992

Rocky Flats Office

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1.0 INTRODUCTION

This monthly status report presents the current status and technical achievements of the Rocky Flats Environmental Restoration Program for July 1992. This program implements the Interagency Agreement (IAG) between the U.S. Department of Energy, the U.S. Environmental Protection Agency (EPA), and the State of Colorado (CDH) to investigate, assess, and remediate, where necessary, contaminated areas at or adjacent to DOE's Rocky Flats Plant in Golden, Colorado. This agreement was signed on January 22, 1991. The work is being performed for DOE by EG&G Rocky Flats, Inc.

Section 2.1 of this report highlights significant achievements and summarizes the milestones completed during July. Section 2.2 presents any major unresolved issues of the program. Technical progress, schedule status, and milestone status for each Operable Unit (OU) as well as other program activities are presented in Section 3.0. Section 4.0 contains the schedules for routine environmental sampling as required by paragraph 210 of the IAG. Section 5.0 contains a list that identifies the contractors and subcontractors performing work on the program as required by paragraph 13 of the IAG.

2.0 EXECUTIVE SUMMARY

2.1 SIGNIFICANT ACTIVITIES AND ACHIEVEMENTS FOR JULY 1992

EPA and CDH granted an extension of the IAG milestone for submittal of the OU 1 draft Phase III RFI/RI report. The document was due to the regulatory agencies on July 30, 1992, and is now due on October 28, 1992. Conditions of the extension include a series of interactive meetings with EPA and CDH on the risk assessment (human and ecologic) issues. These meetings began during the week of July 6, 1992.

On July 22, 1992, the vault located at the OU 1 881 Hillside French Drain sump overflowed. The floor drain in the vault was clogged, causing the overflow. This and other items associated with the french drain are being investigated.

The OU 1 881 Hillside French Drain Monitoring Well drilling program began July 28, 1992. This program was initiated at the request of EPA/CDH as a condition of modifications to the french drain design.

Preliminary test results from the three pump tests conducted in July on OU 2 have been analyzed. A draft copy of the Aquifer Testing Report was received on July 27, 1992. Internal review of the document began upon receipt and was completed. A final copy of the report is scheduled to be completed and ready for internal review by August 14, 1992.

Three of the five pits for the OU 2 Surficial Soil Sampling Program have been completed. The final pit is scheduled to be closed near the end of September 1992 which will finalize the OU 2 Alluvial Field Program.

The Draft OU 2, Technical Memorandum #5, Exposure Scenarios, was submitted to the regulatory agencies on July 13, 1992. Comments received are under evaluation and the final will be submitted on August 21, 1992. Technical Memorandum #6, the Modeling Tech Memo, is being reviewed internally.

Operation of the OU 2 Field Treatability Unit was interrupted for six hours on July 25, 1992, for two hours on July 26, 1992, for one and a half hours on July 27, 1992, for a half hour on July 28, 1992 and for three hours on July 30, 1992 (an approximate total of 13 hours downtime in four days) as a result of loose rheostat and field wires in the generator. A contingency plan is in place for providing backup generator equipment within a 72-hour period in case of primary generator failure. Also, the design process to provide plant power for this project is in progress.

Resolution of the *Spiranthes diluvialis* (an endangered plant) issue continues to delay the start of the OU 3 soil trenches and drilling of the groundwater monitoring wells.

OU 3 drainage sediment sampling in the Woman Creek basin started July 6, 1992. Surface soil sampling and environmental sampling continues. Drainage sediment sampling in the upper Woman Creek and Mower Reservoir basin was completed. Approximately 16 sediment samples cannot be sampled until later in the summer due to high water levels.

Negotiations of the contract for implementation of the OU 4 Final Phase I RFI/RI Work Plan were held on July 16, 1992. The contract award is scheduled for the beginning of August 1992 pending internal approval by DOE/RFO and EG&G Procurement.

Preparation of a resource loaded schedule, describing the relationship of activities required for successful execution of the Pondcrete work, is underway and expected to be available August 14, 1992. Coordination between Halliburton-NUS, Rocky Flats Plant Organizations and EG&G Environmental Management is underway to integrate the necessary data.

The OU 4 Pondcrete project modular tanks installation is complete. Underdrain modification was redesigned due to the slope instability problems. The underdrain remodification design review is in progress.

The OU 6 Health and Safety Plan and the Field Implementation Plan have been written. Field activities are scheduled to begin in the first part of September 1992.

The proposals for implementing the OU 7 RFI/RI Work Plan were received July 6, 1992. Technical evaluation of the proposals was completed in July.

CDH and EPA are reviewing the Draft Phase I RFI/RI Work Plan for OU 8 submitted on June 22, 1992. CDH and EPA were scheduled to submit comments by July 30, 1992.

Proposals for implementation of the OU 9 RFI/RI Work Plan from three small businesses for were submitted to EG&G Procurement on July 10, 1992. Technical evaluation of the proposals began on July 14, 1992.

The draft RFI/RI Work Plans for OU 12, 13, 14 and 15 are undergoing review by the regulatory agencies.

The Final No Further Action Justification Document for OU 16 was submitted to the regulatory agencies on July 30, 1992, the IAG milestone date.

2.2 PROBLEMS AND PROGRAMMATIC ISSUES

Resolution of the *Spiranthes diluvialis* (an endangered plant) issue continues to delay the start of the soil trenches and drilling of the groundwater monitoring wells in OU 3 Offsite Areas.

Remedial actions for the OU 3 Offsite Areas required under the 1985 McKay v. U.S. Settlement Agreement may be in conflict with CERCLA. Tilling of the land surface to mix plutonium contaminated surface soil, as required under the Settlement Agreement, prior to completion of the RI/FS will probably not be allowed by EPA. The remedial action as determined by the RI/FS process, if any, will probably not include plutonium soil mixing through tilling.

Long-lead valves used in OU 4 Pondcrete Activities will delay project completion. Government priority information regarding the long-lead valves was provided to subcontractor in order to help expedite delivery; alternative valves are being evaluated. Expediting of the valves using government priority is being pursued. The current scheduled completion date is August 17, 1992, six weeks late. The delay in removal of sludge from the solar ponds and the requirement for an IM/IRA for the surge tanks has impacted the IAG start of the RFI/RI field activities scheduled for January 1992. The impact, if any, to the IAG milestone for delivery of the RFI/RI Report is being evaluated.

OU 5 and 6 fieldwork originally scheduled to begin in the Fall of 1991, and then postponed until Spring of 1992 due to budgeting uncertainties was further delayed until the Summer of 1992 because of

additional revisions of the final Work Plans requested by the regulatory agencies. Approval of the final Work Plans was not received until February 1992. The subcontract process was started after approval of the Work Plans and is following "normal" contractual procedures at the Rocky Flats Plant. Further delays for the OU 6 fieldwork were caused by a perceived Organizational Conflict of Interest by DOE, which has now been resolved. Some IAG milestones may be missed resulting from these delays.

Western Aggregate has submitted a request to DOE to mine the mineral resources, to which they own the rights, and are located under a portion of the western edge of the Rocky Flats Plant. The land in question is located within OU 11 - West Spray Field. DOE has had preliminary discussions with EPA on this matter, and EPA agrees with DOE that a decision for any mining operations should be delayed until the OU assessment is complete. DOE legal staff is reviewing the request from Western Aggregate. A meeting between the parties was held in September, 1991. The DOE Realty Officer is negotiating a mineral rights exchange which is tentatively scheduled to be completed by the Fall of 1992.

2.3 NEAR-TERM IAG MILESTONES

| <u>OU#</u> | <u>Milestone Description</u> | <u>Scheduled Completion</u> | <u>Actual Completion</u> |
|------------|---|-----------------------------|--------------------------|
| 02 | Submit Final Treatability Test Report (GAC) | 02 Jun 92 | 02 Jun 92 |
| SW | Submit Final Historical Release Report | 03 Jun 92 | 29 May 92 |
| 14 | Submit Draft Phase I RFI/RI Work Plan | 26 Jun 92 | 26 Jun 92 |
| 01 | Submit Draft RFI/RI Phase I Report | 30 Jul 92* | |
| 16 | Submit Final No Further Action Justification Document | 30 Jul 92 | 30 Jul 92 |

*The submittal of the draft RFI/RI Report milestone date was extended from July 30, 1992 to October 28, 1992.

3.0 PROJECT STATUS

3.1 OU 1 - 881 HILLSIDE AREA

DESCRIPTION:

The alluvial groundwater at the 881 Hillside Area, located north of Woman Creek in the southeast section of Rocky Flats Plant, was contaminated in the 1960s and 1970s with solvents and radionuclides. The area is almost two miles from the eastern, outer edge of the plant's buffer zone at Indiana Street. The various Individual Hazardous Substance Sites (IHSSs) that make up OU 1 are being investigated and treated as high-priority sites because of elevated concentrations of organic compounds in the near-surface groundwater and the proximity of the contamination to a drainage system leading to an offsite drinking water supply. The selected Interim Remedial Action (IRA) at OU 1 involved the construction of an underground drainage system called a French drain that intercepts and contains contaminated groundwater flowing from the OU 1 area. The contaminated water is being treated at the 891 treatment facility, designed for this purpose, and released onsite into the South Interceptor Ditch alongside Woman Creek. IRA construction was completed in Spring 1992. The remedial investigation and feasibility study (RI/FS) to determine the final remedial action are continuing in parallel with the IRA.

3.1.1 OU 1 ASSESSMENT

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

IAG MILESTONE ACCOMPLISHMENTS:

| | |
|---|------------|
| Submit Draft Phase III RFI/RI Work Plan | 06 Feb 90 |
| Submit Final Phase III RFI/RI Work Plan | 31 Oct 90 |
| Submit Draft Phase III RFI/RI Report | 28 Oct 92* |

- * This milestone was extended by the regulatory agencies until October 28, 1992, the original due date was July 30, 1992.

JULY WORK ACTIVITY STATUS:

EPA and CDH granted an extension of the IAG milestone for submittal of the OU 1 draft Phase III RFI/RI report. The document was due to the regulatory agencies on July 30, 1992, and is now due on October 28, 1992. Conditions of the extension include a series of interactive meetings with EPA and CDH on the risk assessment (human and ecologic) issues. These meetings began the week of July 6, 1992.

Comments were received from DOE/HQ and HAZWRAP (a DOE/HQ contractor) on the OU 1 Draft RFI/RI Report on July 10, 1992. Responses to these comments are being prepared and incorporated into the document.

Work has continued on incorporating Phase III data into the OU 1 Draft RFI/RI report. Approximately 90 percent of all Phase III data is now available for incorporation. The outstanding data is primarily radionuclide analyses. The new data is suggesting that some interpretations of contaminant occurrence and distribution will be changed in the Draft RFI/RI report.

PLANNED WORK FOR AUGUST:

Data evaluation and incorporation of comments from HQ and HAZWRAP will continue on the OU 1 Phase III RFI/RI report

The human health and ecological risk assessment working group meetings requested by EPA as requisite for the recently granted schedule extension will continue as scheduled.

Assess the cascade effect of the draft RFI/RI report extension on subsequent IAG milestones and propose a revised schedule to EPA and CDH.

Work on the subcontracting process for the OU 1 Feasibility Study is planned to continue through August.

PROBLEMS: None

OPEN ITEMS: None

3.1.2 OU 1 REMEDIATION

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

IAG MILESTONE ACCOMPLISHMENTS:

| | |
|---|-----------|
| Submit Draft Proposed IM/IRA Decision Document | 18 Sep 89 |
| Submit Proposed IM/IRA Decision Document | 06 Oct 89 |
| Submit Final IM/IRA Decision Document | 05 Jan 90 |
| Begin Phase I-A IM/IRA Construction | 15 Jan 90 |
| Restart Phase I-A IM/IRA Construction (after shutdown) | 20 Jun 90 |
| Begin Phase I-B IM/IRA Construction (ahead of schedule) | 28 Sep 90 |
| Submit IM/IRA Implementation Document | 22 Feb 91 |
| Begin Phase II-A IM/IRA Construction | 01 Apr 91 |
| Begin IM/IRA Testing | 05 Aug 91 |
| Begin Phase II-B IM/IRA Construction | 03 Sep 91 |
| Complete IM/IRA Construction | 02 Mar 92 |

JULY WORK ACTIVITY STATUS:

Effluent Tank 205 is full. Recent lab analysis confirmed Tank 206 is ready for discharge (i.e., chlorides are at acceptable levels, and organic contaminants from the tank's internal coating are removed to below detection limits). The pH of the water is presently 6.5. The water will be recirculated through the ion exchange system briefly to raise pH slightly; this will help avoid potential discharge of "off-spec" water to the South Interceptor Ditch in case of a pH swing.

On July 22, 1992, the vault located at the French Drain sump overflowed. The floor drain in the vault was clogged, causing the overflow. The drain was unclogged and operations resumed. Future prevention of this and other items associated with the french drain are being investigated.

The French Drain Monitoring Well drilling program began July 28, 1992. This program was initiated at the request of EPA and CDH as a condition of modifications to the French Drain design.

The gamma sensor unit for monitoring the effluent water for the OU 1 IM/IRA has been assembled. The computer to be used with the sensor has been set up. Characterization of the sensor has been delayed indefinitely due to gamma survey activities associated with OU specific Remedial Investigation work. The shielding that goes around the sensor has not been built. Construction of the shielding has been delayed, in part, because of the lead bricks that were to be used had too high of a gamma count to be of any use on this project. Discussions with the regulatory agencies may be initiated to determine whether the output from the gamma sensor can be substituted for analytical radionuclide laboratory analyses as criteria for discharging water out of the effluent tanks. If it can be substituted, it would increase the treatment system capacity by reducing the hold time for the effluent water. Presently, analysis of effluent samples must be expedited to meet the required 14-day lab turnaround time. Additionally, plans are in the works for installation of a portable gas chromatography unit within Building 891.

PLANNED WORK FOR AUGUST:

Continued operation of the french drain and 891 treatment building.

Continue installation of french drain monitoring wells.

PROBLEMS: None

OPEN ITEMS: None

3.2 OU 2 - 903 PAD, MOUND, AND EAST TRENCHES

DESCRIPTION:

The contamination at the 903 Pad and Mound areas is largely attributed to the storage in the 1950s and 1960s of waste drums that corroded over time, allowing hazardous and radioactive material to leak into the surrounding soil. Additional contamination may have resulted from wind dispersion during drum removal and soil movement activities. The East Trenches Area was used for disposal of plutonium- and uranium-contaminated waste and sanitary sewage sludge from 1954 to 1968. Two areas adjacent to the trenches were used for spray irrigation of sewage treatment plant effluent, some of which may have contaminants that were not removed by the treatment system.

An Interim Measures/Interim Remedial Action (IM/IRA) provides for surface water in source areas of contamination to be collected, treated, and discharged to the surface water drainage. Operation of a field-scale treatability unit for the South Walnut Creek drainage provides treatment for volatile organic compounds with granular activated carbon (GAC) which began in May, 1991. The effectiveness of the treatment process will be evaluated at three locations: the entrance to the treatment facility, several points within the facility, and the discharge point. A radionuclide removal system was added to the system for removal of radionuclides in April 1992. After completion of the field-scale treatability tests, the unit is anticipated to remain in service until the final remedial action is operational. The RI and FS are continuing in parallel with the IRA.

A second IM/IRA was established in late-1991. This Proposed Subsurface Investigation (Woman Creek) IM/IRA proposes to employ vapor extraction treatment of organic compounds in the vadose zone as a field pilot test. This technology will be implemented at the 903 Pad, The Mound Area, and the East Trenches Area. The purpose of the project will be to determine the effectiveness of the technology for the geologic and environmental conditions.

3.2.1 OU 2 ASSESSMENT

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

IAG MILESTONE ACCOMPLISHMENTS:

| | |
|---|-----------|
| Submit Draft Phase II RFI/RI Work Plan (Alluvial) | 21 Dec 89 |
| Submit Final Phase II RFI/RI Work Plan (Alluvial) | 12 Apr 90 |
| Submit Draft Phase II RFI/RI Work Plan (Bedrock) | 05 Feb 91 |
| Submit Final Phase II RFI/RI Work Plan (Bedrock) | 02 Jul 91 |

JULY WORK ACTIVITY STATUS:

Three pump and tracer tests were completed during July 1992. Water collected during the pump tests was sampled and transported to the decontamination facility and eventually to the heat evaporator at Building 374. Preliminary test results from the three pump tests have been analyzed. A draft copy of the Aquifer Testing Report was received on July 27, 1992. Internal review of the document was

conducted and a final copy of the report is scheduled to be completed and ready for internal review by August 14, 1992.

Three of the five pits for the Surficial Soil Sampling Program have been completed. The final pit is scheduled to be closed near the end of September 1992.

Technical Memorandum #5, Exposure Scenarios, was submitted to the regulatory agencies on July 13, 1992. Comments received are under review, and the final will be submitted on August 21, 1992. Technical Memorandum #6, the Modeling Tech Memo, is being reviewed internally.

Work on the No. 1 Arapahoe sand channel map continued. Surface and groundwater geochemistry data were received from RFEDS (Rocky Flats Environmental Database System). Field mapping of geologic outcrops and surficial seeps are being refined.

Database management services continue in support of the OU 2 RFI/RI Report and, in general, to RFEDS.

Subcontract negotiations for Modification #8 to sample surficial soils, and Modification #9, support services, were completed in July. The contract is scheduled to be awarded at the beginning of August.

Field files are being transferred from the field trailer to the data repository.

PLANNED WORK FOR AUGUST:

Data evaluation required to generate the RI report, and review of the draft copy of the Aquifer Testing Report will continue through August.

Work on Technical Memorandum 6, the Modeling Tech Memo, is planned to continue through August. Submittal of Tech Memo 6 to the regulatory agencies is scheduled for mid-September.

Modification #8 and #9 contracts are scheduled to be awarded at the beginning of August.

Field files are scheduled to continue to be transferred from the field trailer to the data repository.

Surficial Soil sampling will continue through August and be completed during September; finalizing OU 2 Alluvial field program.

PROBLEMS: None

OPEN ITEMS:

Comments on Technical Memorandum 6, Modeling, are expected from the regulatory agencies.

3.2.2 OU 2 REMEDIATION (SURFACE WATER IM/IRA AND SUBSURFACE IM/IRA)

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

IAG MILESTONE ACCOMPLISHMENTS:

| | |
|--|-----------|
| Submit Draft Proposed IM/IRA Decision Document | 19 Jun 90 |
| Submit Proposed Plan IM/IRA Decision Document | 18 Sep 90 |
| Submit Draft Responsiveness Summary | 13 Dec 90 |
| Submit Final Responsiveness Summary and Final IM/IRA Decision Document | 11 Jan 91 |
| Field Treatability Test System Installation Complete | 10 May 91 |
| Begin Field Treatability Testing (Carbon System) | 13 May 91 |
| Submit Draft Proposed Subsurface IM/IRA/EA | 02 Mar 92 |
| Submit Draft Treatability Test Report | 01 Apr 92 |
| Complete Construction Chemical Precipitation/Microfiltration | 24 Apr 92 |
| Begin Operations Chemical Precipitation/Microfiltration | 27 Apr 92 |
| Submit Final Treatability Test Report | 02 Jun 92 |

JULY WORK ACTIVITY STATUS:

The field treatability unit (FTU) collected, treated and discharged 447,950 gallons of surface water during the month of July 1992. Improvements in the filtration unit cleaning cycle were successfully implemented. This increases time between cleaning and maintains high filter flux rates.

The Procedures Manual and Health and Safety Plan for the OU 2 Surface Water IRA Operations and Maintenance continue to be developed.

Analytical data from the spent carbon unit for the GAC has been forwarded to the RCRA permit group for classification. DOE/RFO directed EG&G to store the spent units as RCRA hazardous waste. A 90-day Accumulation Area is being established near the FTU to store sludge generated from the treatment process. Data from the spent carbon unit for the GAC is being analyzed.

On June 23, 1992, the sulfuric acid feed to Reaction Tank 1 was discontinued in an attempt to reduce chemical usage and sludge generation. The use of less sulfuric acid means the use of less neutralization chemicals; consequently, less sludge will be generated. On July 8, 1992, flow rates through the membranes were reduced. After further assessment, sulfuric acid addition to Reaction Tank 1 resumed as of July 10, 1992. The evaluation of reducing chemical usage and sludge generation continues.

On July 8, 1992 at approximately 1:00 p.m., four to five gallons of diesel fuel was spilled accidentally while refueling the generator at the OU 2 Field Treatability Unit (FTU). Soil and gravel exposed to the fuel was drummed immediately and is stored onsite. A critique was held on July 10, 1992 to assess the incident. Reporting procedures for accidents and spills at the facility are being revised. Further corrective measures for this spill are pending.

Approximately one-half gallon of hydraulic fluid was spilled July 16, 1992 at 8:35 a.m. from a broken forklift power steering cylinder. Exposed soil and gravel was contained and is being stored pending pick-up for disposal.

The flow meters for SW-59 and SW-61 were installed July 17, 1992 and were operational July 22, 1992. The flowmeter at SW-59 indicated an average of 0.7 to 1.0 gpm, and SW-61's flow meter indicated an average of 10 to 11 gpm.

Operation of the FTU was interrupted for six hours on July 25, 1992, for two hours on July 26, 1992, from one and a half hours on July 27, 1992, for a half hour on July 28, 1992 and for three hours on July 30, 1992 (an approximate total of 13 hours downtime in four days) as a result of loose rheostat and field wires in the generator. A contingency plan is in place for providing backup generator equipment within a 72-hour period in case of primary generator failure. Also, the design process to provide plant power for this project is in progress.

The design work on the first Test Plan for the Subsurface IRA began. The Test Plan details project and design plans and specifications. The Test Plan is due on September 4, 1992 to begin internal review.

Regulatory agency comments on the Draft Subsurface IM/IRA/EA Responsiveness Summary document were received on July 7, 1992. DOE/RFO, the regulatory agencies and EG&G met on July 9, 1992 to discuss comments. A copy of the Draft Final Decision Document and the Responsiveness Summary are due to DOE/RFO for internal review on August 5, 1992.

PLANNED WORK FOR AUGUST:

The OU 2 Surface Water IM/IRA/EA GAC treatment unit and the Radionuclide Removal System will continue operations.

A copy of the Draft Final Decision Document and the Responsiveness Summary for the OU 2 Subsurface IM/IRA/EA are due to DOE/RFO for internal review on August 5, 1992.

The design work on the first Test Plan for the Subsurface IRA is planned to continue. The Test Plan details project and design plans and specifications. The Test Plan is due on September 4, 1992 to begin internal review.

PROBLEMS:

Spent GAC and treatment residuals are being stored improperly in the OU 2 area. Resolution of this issue with Waste Programs in order to comply with RCRA requirements is being addressed.

OPEN ITEMS: None

3.3 OU 3 - OFFSITE AREAS

DESCRIPTION:

OU 3 can be divided into two categories based on two main activities. The IAG directs activities according to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This involves assessment of contamination in offsite areas also referred to as IHSSs: Contamination of the Land Surface (IHSS 199), Great Western Reservoir (IHSS 200), Standley Lake (IHSS 201), and Mower Reservoir (IHSS 202). The second category responds to a 1985 out-of-court lawsuit settlement, McKay v. U.S., which directed that the surface soil contamination be remediated. Remedial activities in compliance with the Settlement Agreement (deep disc plowing) began in 1985. The disturbance resulting from remediation is being revegetated with mediocre success. The overall schedule for this activity is determined by the year-to-year success of the revegetation effort and requirements of the land owners.

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

IAG MILESTONE ACCOMPLISHMENTS:

| | |
|---|-----------|
| Submit Draft Past Remedy Report | 26 Oct 90 |
| Submit Draft Historical Information/Preliminary Health Risk Assessment Report | 09 Nov 90 |
| Submit Final Past Remedy Report | 02 Apr 91 |
| Submit Final Historical Information/Preliminary Health Risk Assessment Report | 16 Apr 91 |
| Submit Draft Phase I RFI/RI Work Plan | 10 Jul 91 |
| Submit Final Phase I RFI/RI Work Plan | 06 Dec 91 |

JULY WORK ACTIVITY STATUS:

Resolution of the *Spiranthes diluvialis* (an endangered plant) issue continues to delay the start of the soil trenches and drilling of the groundwater monitoring wells.

Offsite Land use permitting continues at a pace intended for it to stay ahead of sampling activities.

Drainage sediment sampling in the Woman Creek basin started July 6, 1992. Surface soil sampling and environmental sampling continues. Drainage sediment sampling in the upper Woman Creek and Mower Reservoir basin was completed. Approximately 16 sediment samples cannot be sampled until later in the summer due to high water levels.

The DOE contract with USGS to conduct sediment sampling in the three OU 3 reservoirs was signed. A kickoff meeting was held to discuss mobilization and coordination of the work. This work involves the sampling of sediment from the three reservoirs. The major sampling work will be conducted during August and September.

The subcontract with Midwest Research Institute (MRI) to conduct the wind tunnel study was signed and a kickoff meeting is scheduled for the week of August 17, 1992. The first task is to produce a technical description of the study that will form the basis for a Technical Memoranda to be submitted to EPA and CDH. Wind tunnel fieldwork is planned for September. The purpose of the wind tunnel test is to model dispersion.

PLANNED WORK FOR AUGUST:

Work is planned to continue to obtain access agreements from offsite land owners for field sampling activities.

USGS is planned to conduct sediment sampling in the three OU 3 reservoirs.

Fieldwork is scheduled to continue.

A survey for the presence/absence of the endangered plant species, *Spiranthes diluvialis*, within OU 3 is planned for August.

PROBLEMS:

Resolution of the *Spiranthes diluvialis* (an endangered plant) issue continues to delay the start of the soil trenches and drilling of the groundwater monitoring wells.

Remedial actions required under the 1985 McKay v. U.S. Settlement Agreement may be in conflict with CERCLA. Tilling of the land surface to mix plutonium contaminated surface soil, as required under the Settlement Agreement, prior to completion of the RI/FS will probably not be allowed by EPA. The remedial action as determined by the RI/FS process, if any, will probably not include plutonium soil mixing through tilling.

OPEN ITEMS: None

3.4 OU 4 - SOLAR EVAPORATION PONDS

DESCRIPTION:

OU 4 is made-up of five solar evaporation ponds: 207A, 207B series (north, center, south), and 207C. Beginning in the late 1950s, the ponds were used to store and evaporate low-level radioactive process water containing high concentrations of nitrates and treated acidic wastes. The sludge and sediments that resulted from the process were periodically removed and disposed of at the Nevada Test Site.

As technology improved through the early 1960s and 1970s, the ponds were relined with various upgraded materials. However, leakage from the ponds into the soil and groundwater was detected. Interceptor trenches were installed in 1971 to collect and recycle groundwater contaminated by the ponds and to prevent natural seepage and pond leakage from entering North Walnut Creek. In 1981, these trenches were replaced by the current, larger, interceptor trench system which recycles approximately four million gallons of groundwater per year back into the solar evaporation ponds.

No additional process water has been pumped into the ponds since 1983. The interceptor trench system collects and recycles groundwater into the solar evaporation ponds continuously. Presently, only the 207B north solar evaporation pond receives contaminated groundwater collected by the interceptor system. The ponds are RCRA interim status regulated units that are currently under closure. In order to proceed and characterize the level of contamination at the site, approximately eight million gallons of excess liquid in the ponds must be removed. The removal of this liquid and the redirection and treatment of the groundwater by the interceptor trench system are the focus of the Interim Measure/Interim Remedial Action (IM/IRA) dated March 1992, which is scheduled to be operational in 1992.

The Solar Evaporation Ponds OU 4 Project is divided into two working groups: OU 4 Environmental Assessment and Pondcrete Activities. The OU 4 Environmental Assessment is driven primarily by the IAG dated January 22, 1991. The IAG provides the structure for regulatory guidance and compliance regarding environmental assessment and investigation of OU 4 to address potential contamination resulting from use of the Solar Evaporation Ponds. Pondcrete activities are focused on "clean out" and closure of the Solar Evaporation Ponds. The "clean out" involves mixing and solidifying the existing water and accumulated sludges within the ponds into concrete blocks for ultimate disposal.

The March 1992 IM/IRA Plan was developed as a regulatory agency requirement that was not included in the scope outlined in the Interagency Agreement (IAG). DOE attempted to modify an existing permit for water removal and treatment for liquids in the solar ponds and groundwater collected by the interceptor trench system, but the regulatory agencies rejected permit modification and required development of an IM/IRA to document operation and use of the proposed water treatment system. The development and implementation of this IM/IRA precedes the IAG scheduled Phase I RFI/ RI fieldwork.

There is an IM/IRA scheduled in the IAG that will be completed after results are collected and analyzed from the Phase I RFI/RI fieldwork. The first draft of the IAG IM/IRA Plan is scheduled for delivery in April 1994.

3.4.1 OU 4 ENVIRONMENTAL ASSESSMENT

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

IAG MILESTONE ACCOMPLISHMENTS:

| | |
|---------------------------------------|-----------|
| Submit Draft Phase I RFI/RI Work Plan | 08 Jun 90 |
| Submit Final Phase I RFI/RI Work Plan | 26 Nov 91 |

JULY WORK ACTIVITY STATUS:

Technical evaluations of subcontractor proposals for implementation of the OU 4 Phase I RFI/RI Work Plan were completed on July 2, 1992.

Negotiations of the contract for implementation of the OU 4 Final Phase I RFI/RI Work Plan were held on July 16, 1992. The contract award is scheduled for the beginning of August 1992 pending internal approval by DOE/RFO and EG&G Procurement.

Training courses for the selected RFI/RI subcontractor were scheduled. Training will include Radiation Worker Training, Core Logging, Health and Safety, Standard Operating Procedures, and General Employee Training for subcontractors.

The responses to comments by CDH in their conditional approval letter for the OU 4 RFI/RI Work Plan dated May 8, 1992 were completed. The responses and page updates were received by DOE/RFO on July 10, 1992 and are being internally reviewed.

PLANNED WORK FOR AUGUST:

Deliver responses to CDH comments on the Work Plan to CDH and EPA.

Award contract for Implementation of OU 4 RFI/RI Work Plan.

Continue Rocky Flats plant permitting process for fieldwork outlined in the Work Plan.

Training courses for the RI fieldwork subcontractor continue to be scheduled. Training will include Radiation Worker Training, Health and Safety, Standard Operating Procedures, and General Employee Training for subcontractors. Core logging training has been scheduled for August 7, 1992.

PROBLEMS:

The delay in removal of sludge from the solar ponds and the requirement for an IM/IRA for the surge tanks has impacted the IAG start of the RFI/RI field activities scheduled for January 1992. The impact, if any, to the IAG milestone for delivery of the RFI/RI Report is being evaluated.

Present lab turnaround durations will also impact the IAG schedule. Estimated duration for samples is 120 days.

OPEN ITEMS: None

3.4.2 OU 4 PONDCRETE ACTIVITIES

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

JULY WORK ACTIVITY STATUS:

The modular tanks installation is complete. Underdrain modification was redesigned due to the slope instability problems. The underdrain remodification design review is in progress.

Long-lead valves will delay project completion. Government priority information regarding the long-lead valves was provided to subcontractor in order to help expedite delivery; alternative valves are being evaluated. Expediting of the valves using government priority is being pursued. The current scheduled completion date is August 17, 1992, six weeks late.

First floor piping on the evaporators, pulling and termination of the power wire, evaporator feed pipe hydro testing, and all piping radiography was completed. The tank seismic package was issued and seismic tank construction began. Beneficial occupancy of the evaporators was obtained on July 20, 1992. Tank seismic upgrades were completed, and Licon flash evaporator rework began.

Bids for sealing the 750 Pad were received on July 10, 1992. The technical evaluation of material for the 750 Pad, Tent 12 was completed on July 7, 1992 and the contract was awarded at the end of July. The pads are being re-sealed to affect RCRA compliance. Because documentation of spill clean-up of old spills does not meet contemporary standards the pads are being re-sealed to trap any potential surface contamination. Material delivery to the Rocky Flats Plant will be planned for one week prior to erection start. The erection bid package was completed and was announced this week. The contract award is anticipated during the week of August 10, 1992. Tent erection is not dependent on sealing operations.

Preparation of a resource loaded schedule, describing the relationship of activities required for successful execution of the pondcrete work, is underway and expected to be available August 14, 1992. Coordination between Halliburton-NUS, Rocky Flats Plant Organizations and EG&G Environmental Management is underway to integrate the necessary data.

A readiness assessment of Building 910 by EM-453 was conducted during the week ending August 7, 1992.

It has been determined, by the Davis-Bacon Committee, that removal of the Tent 6 Permacon structure is Davis-Bacon covered. This requires that the work be performed by a subcontractor. Subcontracting the work will likely impact the project schedule. Submittal of the Davis-Bacon request for trailer installation and Tent 6 removal occurred during July.

PLANNED WORK FOR AUGUST:

The underdrain remodification design is planned to be approved.

Expediting of the long-lead valves using government priority is planned.

The contract award for sealing the 750 Pad is anticipated during the week of August 10, 1992.

Preparation of a resource loaded schedule, describing the relationship of activities required for successful execution of the pondcrete work, is underway and expected to be available August 14, 1992. Coordination between Halliburton-NUS, Rocky Flats Plant Organizations and Environmental Management is underway to integrate the necessary data.

A readiness assessment and Safety Analysis Review of Building 910 by EM-453 is expected to occur during the week ending August 7, 1992.

PROBLEMS:

Long-lead valves will delay project completion. Government priority information regarding the long-lead valves was provided to subcontractor in order to help expedite delivery; alternative valves are being evaluated. Expediting of the valves using government priority is being pursued. The current scheduled completion date is August 17, 1992, six weeks late.

OPEN ITEMS: None

3.5 OU 5 - WOMAN CREEK

DESCRIPTION:

Ten Individual Hazardous Substance Sites (IHSSs), geographically located along or within drainage areas of Woman Creek, have been designated as Operable Unit 5 (OU 5). These IHSSs are identified in the Interagency Agreement (IAG) as the Original Landfill (IHSS 115), Ash Pits (IHSS 133.1-133.4), Incinerator Area (IHSS 133.5), Concrete Wash Pad (IHSS 133.6), Detention Ponds C-1 and C-2 (IHSSs 142.10 and 142.11), and a Surface Disturbance (IHSS 209). Ponds C-1 and C-2 are the only IHSSs located on Woman Creek. The remaining eight IHSSs are located along the banks and/or upland areas that drain into Woman Creek or into the South Interceptor Ditch (SID). In addition to these ten IHSSs, two additional surface disturbances will be investigated in the Phase I OU 5 investigation, a surface disturbance west of IHSS 209 and a surface disturbance south of the Ash Pits (133).

Chemicals that may have been placed in the above IHSSs include commonly used solvents, such as trichloroethylene, carbon tetrachloride, tetrachloroethylene, petroleum distillates, 1,1,1-trichloroethane, dichloromethane, benzene, paint and paint thinners. Metals such as beryllium, uranium, lead, and chromium may also be present. Concerned media include soils, sediments, surface water, groundwater, and air resuspension.

Assessment activities include analysis of existing available data and fieldwork scheduled to begin in the Summer of 1992. Limited historical data is available. For example, the Original Landfill was closed with a soil cover; however, a bottom liner was not installed. Details of the construction of the surface cover are not available, nor is the year the cover was installed.

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

IAG MILESTONE ACCOMPLISHMENTS:

| | |
|---------------------------------------|-----------|
| Submit Draft Phase I RFI/RI Work Plan | 05 Apr 91 |
| Submit Final Phase I RFI/RI Work Plan | 30 Aug 91 |

JULY WORK ACTIVITY STATUS:

Preparation of the Work Plan Implementation Plan for OU 5 and the Health and Safety Plan continues. Fieldwork is scheduled to begin in the later part of August 1992.

In meetings held this week among DOE/RFO and EG&G, a scope of work and a delivery schedule was agreed upon for the draft Technical Memoranda 1 (TM1) Surface-Water and Sediment Sampling and Analysis Plan at OU 5. A draft document was delivered to DOE/RFO on July 31, 1992.

A preliminary draft of the format to be used for the upcoming TMs for field programs is currently under review. The design of the programs to be generated in the TMs cannot be completed until predicative tasks have been completed in the field. The schedule for delivery of the TMs has been identified in the project schedule for OU 5.

Delivery of preliminary draft documents for Technical Memoranda 4 (TM 4), Surface Soil Sampling Plan - Ash Pits and Surface Disturbance, and Technical Memoranda 5 (TM 5), Revised Soil Gas Sampling Plan - Original Landfill at OU 5 were received.

A timeline schedule for sample collection at OU 5 has been developed. The schedule lists the number of samples/analytes and week and month they are to be collected.

Preliminary draft documents from the RI fieldwork subcontractor for the following were received in July:

- Revised draft Technical Memoranda 1 (TM 1), Water and Sediment Sampling Plan
- Technical Memoranda 3 (TM 3), Soil Sampling Plan - Landfill (IHSS 115)
- Technical Memoranda 7 (TM 7), Soil Boring Sampling Plan
- Technical Memoranda 8 (TM 8), Monitoring Well Installation (IHSS 115)
- Technical Memoranda 9 (TM 9), Monitoring Well Installation (IHSS 133)
- Draft Health and Safety Plan for OU 5
- Implementation of Phase I RFI/RI Work Plan

PLANNED WORK FOR AUGUST:

Fieldwork is scheduled to begin in August 1992.

PROBLEMS:

Fieldwork originally scheduled to begin in the beginning of Fall of 1991, and then postponed until Spring of 1992 due to budgeting uncertainties was further delayed until the Summer of 1992 because of additional revisions of the final OU 5 Work Plan requested by the regulatory agencies. Approval of the final Work Plan was not received until February 1992. The subcontract process was started after approval of the Work Plan and is following "normal" contractual procedures at the Rocky Flats Plant. Some IAG milestones may be missed due to these delays.

OPEN ITEMS: None

3.6 OU 6 - WALNUT CREEK

DESCRIPTION:

This activity encompasses assessment and remediation in the Walnut Creek Drainage of twenty-one Individual Hazardous Substance Sites (IHSSs). They are the A-series Detention Ponds, Ponds A-1 through A-4 (IHSS 142.1 through 142.4 and 142.12); the B-series Detention Ponds, Ponds B-1 through B-5 (IHSS 142.5 through 142.9); the North, Pond, and South Area Spray Fields (IHSS 167.1, 167.2 and 167.3); the East Area Spray Field (IHSS 216.1), the Trenches A, B and C (IHSS 166.1, 166.2 and 166.3); the Sludge Dispersal Area (IHSS 141); the Triangle Area (IHSS 165), and the Old Outfall Area (IHSS 143). One additional site, the Soil Dump Area (IHSS 156.2), was transferred from OU 14 to OU 6 in 1991. Two IHSSs, Property Utilization And Disposal Yard (IHSS 170) and Property Utilization and Disposal Container Storage Facilities (IHSS 174) have been transferred from OU 6 to OU 10. Thirteen groundwater monitoring wells will be installed throughout OU 6 to monitor the alluvial aquifer. Five bedrock groundwater monitoring wells will be installed in the vicinity of North Walnut Creek during the OU 6 remedial investigation. To characterize the bedrock aquifer in the vicinity of the A-series ponds, up to 9 additional bedrock groundwater monitoring wells may be installed.

Sediment samples will be collected from the drainage in OU 6 where existing data are insufficient to adequately characterize the sediments. Sediment sampling has been proposed along each stream segment on North and South Walnut creeks where additional characterization is needed. Based on a review of the data collected at the existing locations along the OU 6 drainage, there is sufficient information about the sediments in many parts of OU 6; therefore, the sampling locations specified in the IAG have been reduced in those areas.

The surface soil sampling has been modified for the Triangle Area (IHSS 165) and the Old Outfall Area (IHSS 143) so that the surface soil samples specified in the IAG will be obtained from the original surface of these units. This will require boring through the overlying fill material down to the original surface to collect samples.

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

IAG MILESTONE ACCOMPLISHMENTS:

| | |
|---------------------------------------|-----------|
| Submit Draft Phase I RFI/RI Work Plan | 19 Apr 91 |
| Submit Final Phase I RFI/RI Work Plan | 16 Sep 91 |

JULY WORK ACTIVITY STATUS:

Work Plan revisions were made that respond to CDH's comments, as required in the conditional EPA approval of the Work Plan. RFO has reviewed the changes and the changes have been incorporated into the Work Plan. The Work Plan is scheduled to be delivered to the regulatory agencies by the end of August.

The Health and Safety Plan and the Field Implementation Plan have been written. Field activities are

scheduled to begin in the first part of September 1992.

RFO has requested that a revised surface water sampling plan be proposed as soon as possible.

A cost estimate for the RI analytical sample analysis is in progress.

The purchase requisition for the Environmental Evaluation is in the procurement process waiting to be awarded under the Master Task Agreement System. DOE/HQ has not yet approved EG&G's Master Task Agreements.

A meeting among DOE/RFO, EPA, CDH and EG&G was held on July 30, 1992 to justify placing the Protected Area (PA) decontamination facility on IHSS 165 within OU 6. EPA, CDH, RFO and EG&G were in agreement that the positioning of the decontamination pad within a portion of IHSS 165 would not affect the RFI/RI or subsequent activities.

PLANNED WORK FOR AUGUST:

The revised Work Plan is scheduled to be delivered to the regulatory agencies by the end of August.

Continued preparation for field activities. Field activities are scheduled to begin in the first part of September 1992.

PROBLEMS:

Fieldwork originally scheduled to begin in the beginning of Fall of 1991, and then postponed until Spring of 1992 due to budgeting uncertainties was further delayed until the Summer of 1992 due to the additional revisions of the final OU 6 Work Plan requested by the regulatory agencies. Conditional approval of the final Work Plan was not received until February 1992. Further delays were caused by a perceived Organizational Conflict of Interest. Some IAG milestones may be missed due to these delays.

OPEN ITEMS: None

3.7 OU 7 - PRESENT LANDFILL

DESCRIPTION:

The Present Landfill - Operable Unit (OU) 7 is located north of the plant complex on the western edge of an unnamed tributary of North Walnut Creek and is comprised of two IHSSs. IHSS 114 includes landfill waste and leachate at the Present Landfill, soils beneath the landfill potentially contaminated with leachate, and sediments and water in the East Landfill Pond. IHSS 203 contains potentially contaminated soils at the Inactive Hazardous Waste Storage Area. A section of the Present Landfill located in the southwest corner was used between 1986 and 1987 as a temporary storage area for hazardous waste. The Present Landfill began operation in August of 1968 and was originally constructed to provide for disposal of Rocky Flats Plant's nonradioactive and nonhazardous wastes. In September 1973, tritium was detected in leachate from the landfill. During the mid-1980s extensive investigations were conducted on the waste streams (types) placed into the landfill, and consequently, hazardous wastes/hazardous constituents were identified. Although currently operating as a nonhazardous sanitary landfill, the facility is considered an inactive hazardous waste disposal unit undergoing RCRA closure.

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

IAG MILESTONE ACCOMPLISHMENTS:

| | |
|---------------------------------------|-----------|
| Submit Draft Phase I RFI/RI Work Plan | 08 Jun 90 |
| Submit Final Phase I RFI/RI Work Plan | 28 Aug 91 |

JULY WORK ACTIVITY STATUS:

The proposals for implementing the OU 7 RFI/RI Work Plan were received July 6, 1992 after the Standard Industry Code (SIC) for the small business set aside program was changed. This change resulted in opening up bidding for companies with less than 500 employees rather than limiting the criteria by average annual revenue over the last three years. This was accepted by the Small Business Administration. Technical evaluation of the proposals for implementing the OU 7 Work Plan was completed in July.

PLANNED WORK FOR AUGUST:

Award of the contract for implementation of the OU 7 RFI/RI Work Plan. Begin mobilization activities for the RFI/RI fieldwork.

PROBLEMS: None

OPEN ITEMS: None

3.8 OU 8 - 700 AREA

DESCRIPTION:

The 24 IHSSs which constitute OU 8 encompass separate sites inside and around the production area of the Rocky Flats Plant. Contamination sources within the various IHSSs include above ground and underground tanks, equipment washing areas, and releases inside buildings which potentially affected areas outside the buildings. Contaminants from these sources may have been introduced into the environment through spills on the ground surface, underground leakage and infiltration, and in some cases through precipitation runoff. The chemical composition of the contaminants also varies widely between the IHSSs, ranging from low-level radioactive mixed wastes to nonradioactive organic and inorganic compounds.

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

IAG MILESTONE ACCOMPLISHMENTS:

Submit Draft RFI/RI Work Plan

01 May 92

JULY WORK ACTIVITY STATUS:

CDH and EPA are reviewing the Draft Phase I RFI/RI Work Plan for OU 8 submitted on June 22, 1992. CDH and EPA were scheduled to submit comments by July 30, 1992.

The Technical Review Group met on July 21, 1992. Comments concerning the OU 8 Work Plan were addressed at this meeting, written comments were also received at the meeting.

PLANNED WORK FOR AUGUST:

Upon receipt, EPA and CDH comments will be resolved and incorporated into the OU 8 RFI/RI Work Plan for final transmittal in September.

PROBLEMS: None

OPEN ITEMS:

CDH and EPA are reviewing the Draft OU 8 Phase I RFI/RI Work Plan submitted on June 22, 1992. CDH and EPA were scheduled to submit comments by July 30, 1992. These comments on the OU 8 Work Plan have not yet been received. If formal written comments from the agencies are not received by August 12, 1992, the September 28, 1992 IAG milestone for delivery of the Final Work Plan for OU 8 may be delayed.

3.9 OU 9 - ORIGINAL PROCESS WASTE LINES

DESCRIPTION:

This activity involves characterizing a series of tanks and associated process waste lines. The Original Process Waste Lines (OPWL) consisted of a system of 57 designated pipe sections extending between 73 tanks and 24 buildings connected by 35,000 feet of buried pipeline that transferred process wastes from point of origin to onsite treatment plants. The system was placed into operation in 1952, and additions were made to the system through 1975. The original system was replaced over the 1975-1983 period by the new process waste system. Some tanks and lines from the original system have been incorporated into either the new process waste system or the fire water deluge collection system.

The original system is known to have transported or stored various aqueous process wastes containing low-level radioactive materials, nitrates, caustics and acids. Small quantities of other liquids were also introduced in the system, including pickling liquor from foundry operations, medical decontamination fluids, miscellaneous laboratory liquids from Building 123, and laundry effluent from Buildings 730 and 778. The RFI/RI plan includes inspection and sampling of the OPWL tanks and pipelines which are accessible, and soil sampling to determine the extent of contamination in the vadose zone. The soil sampling will be performed by installing test pits and borings where known or suspected releases occurred, near pipe joints and valves, at approximately 200-foot intervals along the pipelines and by installing borings around the tanks which are outdoors. Soil characterization studies will determine the need for soil removal and/or treatment. The results of the RFI/RI will determine the need for interim and/or final remediation action.

During April 1992, 20 IHSSs were transferred from OUs 8, 10, 12, 13, and 15 and added to OU 9 as part of a IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. The IHSSs that were transferred to OU 9 include: 123.2-Valve Vault West of Building 707, 125-Holding Tank, 126.1 and 126.2-Out-of-Service Process Waste Tanks, 127-Low-Level Radioactive Waste Leak, 132-Radioactive Site - 700 Area Site #4, 146.1-146.6-Concrete Process Waste Tanks, 149-Effluent Pipe, 159-Radioactive Site Building 559, 124.1-124.3-Radioactive Liquid Waste Storage Tanks, 147.1-Process Waste Leaks/Maas Area, 122-Underground Concrete Tank, and 215-Tank T-40.

The above IHSSs all constitute part of the Original Process Waste Lines and will be investigated and remediated as such. These IHSS changes were recommended by DOE in the now-approved OU 9 Phase I RFI/RI Work Plan and approved by CDH and EPA in April 1992.

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

IAG MILESTONE ACCOMPLISHMENTS:

| | |
|---------------------------------------|-----------|
| Submit Draft Phase I RFI/RI Work Plan | 08 Jun 90 |
| Submit Final Phase I RFI/RI Work Plan | 26 Nov 91 |

JULY WORK ACTIVITY STATUS:

The schedule and cost impact to OU 9 due to the transfer of 20 IHSSs from various OUs to OU 9 is being evaluated. A detailed assessment of the schedule and cost impacts due to the transfer of IHSSs is scheduled to be completed by August 28, 1992.

Proposals for implementation of the RFI/RI Work Plan for OU 9 were submitted to EG&G Procurement on July 10, 1992 from three small businesses. Technical evaluation of the proposals began on July 14, 1992. Contract award is anticipated during September 1992.

PLANNED WORK FOR AUGUST:

Analysis of the schedule and cost impact to OU 9 due to the transfer of 20 IHSSs from various OUs to OU 9 will be completed. A detailed assessment of the schedule and cost impacts due to the transfer of IHSSs is scheduled to be completed by August 28, 1992.

Evaluation of the proposals for implementation of the RFI/RI Work Plan will continue.

PROBLEMS: None

OPEN ITEMS: None

3.10 OU 10 - OTHER OUTSIDE CLOSURES

DESCRIPTION:

OU 10 is made up of 15 IHSSs scattered throughout the plant which consist of various hazardous waste constituents. Five of the IHSSs are located in the PA, two are located in the buffer zone near the present landfill, and the remaining are located near various buildings throughout the plant. The types of wastes identified at these sites range from pondcrete/saltcrete storage and drum storage to a utilization yard with waste spills. The primary components of the RFI/RI Work Plan for OU 10 will be a Field Sampling Plan (FSP), Baseline Risk Assessment Plan (BRAP), and an Environmental Evaluation (EE) Work Plan. IRA is scheduled to begin in early 1998.

Three additional IHSSs were transferred from other operable units to OU 10 after the Draft RFI/RI Work Plan was completed in FY90. The Draft Work Plan was based on the draft IAG which was modified during final IAG negotiations. A contract modification was initiated to incorporate the three IHSSs into the Draft Work Plan and to perform general upgrades to the Plan.

During April 1992, IHSSs 124.1-124.3, the Radioactive Liquid Waste Storage Tanks were transferred from OU 10 and added to OU 9 as part of a IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG.

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

IAG MILESTONE ACCOMPLISHMENTS:

| | |
|---------------------------------------|-----------|
| Submit Draft Phase I RFI/RI Work Plan | 27 Nov 91 |
| Submit Final Phase I RFI/RI Work Plan | 01 May 92 |

JULY WORK ACTIVITY STATUS:

The revised OU 10 Final RFI/RI Work Plan was submitted to the regulatory agencies on July 17, 1992. Approval of the Work Plan is anticipated in August 1992.

PLANNED WORK FOR AUGUST:

The OU 10 Final RFI/RI Work Plan is scheduled to be under review by the regulatory agencies and approval by the end of August 1992.

PROBLEMS: None

OPEN ITEMS:

Approval of the OU 10 Final RFI/RI Work Plan by the regulatory agencies is scheduled for completion by the end of August.

3.11 OU 11 - WEST SPRAY FIELD

DESCRIPTION:

The West Spray Field is located within the Rocky Flats Plant buffer zone immediately west of the plant security area. The West Spray Field was in operation from April 1982 to October 1985. During operation, excess liquids from solar evaporation ponds 207-B North and Center (contaminated groundwater in the vicinity of the ponds and treated sanitary sewage effluent) were pumped periodically to the West Spray Field for spray application. The spray field boundary covers an area of approximately 105.1 acres, 38.3 of which received direct application of hazardous waste. The RFI/RI process will entail field studies to determine the presence and levels of hazardous constituents in soil and groundwater.

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

IAG MILESTONE ACCOMPLISHMENTS:

| | |
|---------------------------------------|-----------|
| Submit Draft Phase I RFI/RI Work Plan | 08 Jun 90 |
| Submit Final Phase I RFI/RI Work Plan | 02 Jan 92 |

JULY WORK ACTIVITY STATUS:

There are some minor issues that the regulatory agencies would like to see clarified regarding the OU 11 RFI/RI Work Plan. A resolution proposal that would be reviewed and approved by CDH prior to initiating any revision to the Work Plan is being developed. This will result in a reduction in the resources necessary to revise and reprint pertinent sections of the Work Plan before CDH has a chance to review the resolutions and should help ensure that all comments have acceptable resolutions for this revision.

PLANNED WORK FOR AUGUST:

Obtain final approval on the OU 11 RFI/RI Work Plan.

PROBLEMS:

Western Aggregate has submitted a request to DOE to mine the mineral resources, to which they own the rights, and are located under a portion of the western edge of the Rocky Flats Plant. The land in question is located within OU 11 - West Spray Field. DOE has had preliminary discussions with EPA on this matter, and EPA agrees with DOE that a decision for any mining operations should be delayed until the OU assessment is complete. DOE legal staff is reviewing the request from Western Aggregate. A meeting between the parties was held in September 1991. The DOE Realty Officer is negotiating a mineral rights exchange which is tentatively scheduled to be completed by the Fall of 1992.

OPEN ITEMS: None

3.12 OU 12 - 400/800 AREA

DESCRIPTION:

The 400/800 Area involves assessment and remediation of the 12 IHSSs at the 400/800 Area, including: Multiple Solvent Spills at the West and South Loading Dock Areas (IHSSs 116.1 and 116.2); Fiberglassing Areas North and West of Building 664 (IHSSs 120.1 and 120.2); Cooling Tower Ponds - Northeast, South, and West of Building 460 (IHSSs 136.1, 136.2, and 136.3); Process Waste Leaks - Maas and Owen Areas (IHSSs 147.1 and 147.2); Radioactive Site - South Area (IHSS 157.2); Acid Leaks (2) (IHSS 187); and Multiple Acid Spills (IHSS 189).

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an Environmental Evaluation and a Human Health Risk Assessment. Implementation of this work plan will include fieldwork and sample analysis, data, and the Phase I RI Report. A Feasibility Study to determine the best methods to remediate the area will be conducted as part of the assessment, if remediation is necessary.

Remediation, if appropriate, will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase of the project. This process includes review and approval by EPA and CDH, followed by a Record of Decision, release to the public, and implementation of the plan.

During April 1992, IHSS 147.1 (the Process Waste Leaks-Maas Area), was deleted from OU 12 and added to OU 9 as part of a IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. This change was recommended by DOE in the now-approved OU 9 Phase I RFI/RI Work Plan and approved by CDH and EPA in April 1992.

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

IAG MILESTONE ACCOMPLISHMENTS:

| | |
|---------------------------------------|-----------|
| Submit Draft Phase I RFI/RI Work Plan | 08 May 92 |
|---------------------------------------|-----------|

JULY WORK ACTIVITY STATUS:

The draft RFI/RI Work Plan for OU 12 is undergoing review by the regulatory agencies. Comments are expected to be received from the agencies in early August. Preliminary discussion would indicate that only minor comment resolution will be needed on the OU 12 Work Plan, specifically the Field Sampling Plan portion of the document.

PLANNED WORK FOR AUGUST:

The draft RFI/RI Work Plan for OU 12 is scheduled to be reviewed by the regulatory agencies through the beginning of August 1992. Once comments are received incorporation into the Final Work Plan is

planned to begin.

PROBLEMS: None

OPEN ITEMS:

Regulatory agency comments on the OU 12 draft RFI/RI Work Plan.

3.13 OU 13 - 100 AREA

DESCRIPTION:

Cleanup of the 100 Area involves the assessment and remediation of 15 IHSSs including: Chemical Storage - North, Middle, and South Sites (IHSSs 117.1, 117.2 and 117.3); Oil Burn Pit #1 (IHSS 128); Lithium Metal Destruction Site (IHSS 134); Waste Spills (IHSS 148); Fuel Oil Tank (IHSS 152); Radioactive Site - North Area (IHSS 157.1); Radioactive Site - Building 551 (IHSS 158); Waste Peroxide Drum Burial (IHSS 169); Solvent Burning Ground (IHSS 171); Valve Vault 12 (IHSS 186); Caustic Leak (IHSS 190); and the Hydrogen Peroxide Spill (IHSS 191).

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an Environmental Evaluation and a Human Health Risk Assessment. After implementation of this work plan, fieldwork and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. A Feasibility Study to determine the best methods to remediate the area will be conducted as part of the assessment.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase of the project. This process includes review and approval by EPA and CDH, followed by a Record of Decision, release to the public, and implementation of the plan.

During April 1992, IHSS 122, the Underground Concrete Tank, was transferred from OU 13 and added to OU 9 as part of a IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. This change was recommended by DOE in the now-approved OU 9 Phase I RFI/RI Work Plan and approved by CDH and EPA in April 1992.

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

IAG MILESTONE ACCOMPLISHMENTS:

| | |
|---------------------------------------|-----------|
| Submit Draft Phase I RFI/RI Work Plan | 15 May 92 |
|---------------------------------------|-----------|

JULY WORK ACTIVITY STATUS:

The regulatory agencies are reviewing the OU 13 draft RFI/RI Work Plan. Comments are due back on August 13, 1992.

PLANNED WORK FOR AUGUST:

The regulatory agencies are reviewing the Work Plan, and their comments are due back on August 13, 1992. Once comments are received incorporation into the Final Work Plan is planned to begin. A comment summary document containing all comments for the OU 13 draft Work Plan is being prepared.

PROBLEMS: None

OPEN ITEMS:

Regulatory agency comments on the OU 13 draft RFI/RI Work Plan.

3.14 OU 14 - RADIOACTIVE SITES

DESCRIPTION:

Work at the Radioactive Sites involves the assessment and remediation of 8 IHSSs, including: Radioactive Site - 700 Area Site #1 (IHSS 131); Radioactive Soil Burial - Building 334 Parking Lot (IHSS 156.1); Building 444 Parking Lot (IHSS 160) and Building 664 (IHSS 161); and Radioactive Site - 700 Area Site #2 (IHSS 162); and Radioactive Sites - 800 Area which includes the Concrete Slab, Building 886 Spills, and the Building 889 Storage Pad (IHSSs 164.1, 164.2, and 164.3, respectively).

Upon finalization of the work plan, implementation of the remedial investigation (RI) fieldwork will begin with the site characterization phase including sample collection, laboratory analysis and data review. A treatability investigation involving bench scale studies will be performed during the latter portion of the RI. A Feasibility Study (FS) will be performed as part of the assessment for the development and screening of treatment alternatives.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase of the project. This process includes review and approval by EPA and CDH, followed by a Record of Decision, release to the public, and implementation of the plan.

In April 1992, IHSS 156.2 (Soil Dump Area) was transferred from OU 14 to OU 6 as recommended by DOE in the now-approved OU 6 Phase I RFI/RI Work Plan because of the IHSS location along the Walnut Creek Drainage.

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

IAG MILESTONE ACCOMPLISHMENTS:

| | |
|---------------------------------------|------------|
| Submit Draft Phase I RFI/RI Work Plan | 26 Jun 92* |
|---------------------------------------|------------|

*Approved extension from May 22, 1992.

JULY WORK ACTIVITY STATUS:

The Draft OU 14 RFI/RI Work Plan is under review by the regulatory agencies. Comments from EPA and CDH are expected to be received during August 1992.

PLANNED WORK FOR AUGUST:

The draft RFI/RI Work Plan for OU 14 is scheduled to be reviewed by the regulatory agencies through the beginning of August 1992. Once comments are received, resolution and incorporation into the Final Work Plan is planned to begin.

PROBLEMS: None

OPEN ITEMS:

Regulatory agency comments on the OU 14 draft RFI/RI Work Plan.

3.15 OU 15 - INSIDE BUILDING CLOSURES

DESCRIPTION:

Work at OU 15 involves remediation of seven IHSSs including: Building 881 Drum Storage Area; Building 865 Drum Storage Area; Building 883 Drum Storage Area; Original Uranium Chip Roaster; Unit 16, Building 890 Cargo Container; Unit 26, Building 881 Drum Storage; Unit 63, Building 371 Drum Storage; and Unit 32, Building 881-Cyanide Bench Scale Treatment. Tasks in this activity are for RCRA closure of several drum storage areas and a uranium chip roaster. Eight facilities will undergo RCRA closure as interim status units. Closure Plans for the facilities were submitted to CDH in 1988 and again in 1989. The major activity proposed is characterization and decontamination, if applicable, of the concrete floors at the indoor facilities. Drums and dumpsters containing solids and liquids were stored at these facilities. Types of waste included oils, coolants and solvents containing chlorinated hydrocarbons (RCRA F001 and F002 wastes), waste paints, and waste metals contaminated with solvents. Hazardous constituents include chlorinated solvents, beryllium, and uranium. At most of the facilities, there is visual evidence of soil contamination.

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

IAG MILESTONE ACCOMPLISHMENTS:

Submit Draft Phase I RFI/RI Work Plan 01 Jun 92*

*The Draft Phase I RFI/RI Work Plan was delivered to the regulatory agencies on May 27, 1992, five days ahead of the IAG milestone date.

JULY WORK ACTIVITY STATUS:

The regulatory agencies are reviewing the Draft OU 15 RFI/RI Work Plan. Comments are expected from the regulatory agencies during August 1992.

Closure of RCRA Unit No. 45, the Original Uranium Chip Roaster (OUCR), prior to November 8, 1992, is highly unlikely. EG&G RCRA Permitting and Compliance has indicated that CDH considers the OUCR to be undergoing the closure process; therefore, the OUCR will not be affected by the November 8, 1992 deadline.

PLANNED WORK FOR AUGUST:

The draft Phase I RFI/RI Work Plan for OU 15 will be at the regulatory agencies for review through August. Comments are expected to be received during September 1992. Once comments are received, incorporation into the OU 15 Final Work Plan is planned to begin.

PROBLEMS: None

OPEN ITEMS:

Regulatory agency comments on the OU 15 draft RFI/RI Work Plan.

3.16 OU 16 - LOW-PRIORITY SITES

DESCRIPTION:

OU 16 assessment activity consists of preparing a No Further Action Justification Document for seven IHSSs, including: IHSS 185 (Solvent Spill), IHSS 192 (Antifreeze Discharge), IHSS 193 (Steam Condensate Leaks), IHSS 195 (Nickel Carbonyl Disposal), IHSS 196 (Water Treatment Plant Backwash Pond), and IHSS 197 (Scrap Metal Sites). In addition, the Rocky Flats Plant must review the document, resolve comments, and finalize the draft. The regulatory agencies will then review the justification and render a decision.

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

IAG MILESTONE ACCOMPLISHMENTS:

| | |
|--|-----------|
| Submit draft No Further Action Justification | 04 Mar 92 |
| Submit Final No Further Action Justification | 30 Jul 92 |

JULY WORK ACTIVITY STATUS:

Comments from EPA and CDH on the Final No Further Action Justification Document were incorporated. The Final No Further Action Justification Document for OU 16 was submitted to the regulatory agencies on July 30, 1992, the IAG milestone date.

PLANNED WORK FOR AUGUST:

The No Further Action Justification Document is scheduled to be under review by the regulatory agencies through August 1992.

PROBLEMS: None

OPEN ITEMS: None

3.17 SITEWIDE ACTIVITIES

DESCRIPTION:

Sitewide activities include several tasks that encompass a wide variety of plans, procedures, reports, studies, and other activities required by the IAG and that apply to Rocky Flats Plant environmental restoration activities in general. The activities include, but are not limited to, the Health and Safety Plan, a Sampling and Analysis Plan, a Plan for Prevention of Contaminant Dispersion, the Community Relations Plan, the Discharge Limits for Radionuclides Work Plan, Treatability Study deliverables, the Background Study Plan, Administrative Record, State Response (support for CDH oversight), Historical Release Report, Operations Management, Decontamination Facilities, Contractor yard support, ER Waste handling facilities, geologic characterization, hydrogeologic characterization, and groundwater monitoring.

SCOPE OF WORK CHANGES THIS REPORTING PERIOD: None

TECHNICAL APPROACH CHANGES THIS REPORTING PERIOD: None

IAG MILESTONE ACCOMPLISHMENTS:

| | |
|--|-----------|
| Submit Draft Background Study Report (Water) | 15 Dec 89 |
| Submit Draft Background Study Report (Soils) | 15 Dec 89 |
| Submit Draft Community Survey Plan | 23 Jan 90 |
| Submit Final Community Survey Plan | 22 Mar 90 |
| Submit Draft Health and Safety Plan | 15 Aug 90 |
| Submit Draft Quality Assurance Project Plan | 29 Aug 90 |
| Submit Draft Standard Operating Procedures | 29 Aug 90 |
| Submit Draft Plan for Prevention of Contaminant Dispersion | 19 Sep 90 |
| Submit Draft Treatability Study Plan | 21 Sep 90 |
| Submit Draft Community Relations Plan | 01 Nov 90 |
| Submit Final Health and Safety Plan | 12 Nov 90 |
| Submit Revised Background Study Report | 21 Dec 90 |
| Submit Final Community Relations Plan | 22 Jan 91 |
| Submit Final Quality Assurance Project Plan | 01 Mar 91 |
| Submit Final Standard Operating Procedures | 01 Mar 91 |
| Submit Draft Radionuclides Discharge Limits Plan | 05 Apr 91 |
| Submit Community Relations Plan Responsiveness Summary | 21 Jun 91 |
| Submit Final Treatability Study Plan | 03 Jun 91 |
| Submit Final Plan for Prevention of Contaminant Dispersion | 22 Jul 91 |
| Submit Final Plan Discharge Limits Radionuclides | 16 Sep 91 |
| Submit Final PPCD and Responsiveness Summary | 25 Nov 91 |
| Submit Draft Historical Release Report | 08 Jan 92 |
| Submit Responsiveness Summary for DLRP | 31 Jan 92 |

JULY WORK ACTIVITY STATUS:

Protected Area (PA) Interim Measure (IM)/Interim Remedial Action Plan (IRAP)

Currently the PA contains all or portions of ten Operable Units (OUs) which are scheduled for Remedial Investigations (RIs). It may be advantageous to defer the RI process within the PA until a time when it is no longer impacted by security concerns. The resulting benefits would be a reduction in operating costs attributed to the ease of operating in a less restrictive working environment, and a better coordination of investigative and remedial effort resulting from the consolidation of geographically similar OUs.

A preliminary project plan was prepared to guide direction for the assembly of an IM/IRAP. The IM/IRAP would provide a plan under which contaminant sources, potential migration pathways, and potential sensitive receptors for known PA contamination are identified, and alternatives are proposed to stabilize or mitigate any immediate human health or environmental risks. The plan would assess and interpret current data with respect to potential exposure pathways and potential sensitive receptors. It would also define the Applicable or Relevant and Appropriate Requirements (ARARs) and applicable environmental regulations. The IM/IRAP will also identify and screen IM/IRA alternatives and provide documentation to aid the National Environmental Policy Act (NEPA) in determination of the environmental impacts of a proposed action.

A statement of work continues to be prepared for development of a PA/IRAP.

Community Relations Activities

The Technical Review Group met on July 21, 1992. Included in this meeting was comments on the OU 8 Work Plan.

Administrative Record

A meeting was held on July 29, 1992 to discuss the Administrative Record (AR) microfilming procedures. Representatives from the EM Quality Assurance Group, EM Records Amangement, EG&G Records Management, Remediation Programs Division/Administrative Record Representatives were in attendance. Providing a copy of the AR in microfilm form to EG&G s Records Management Department was discussed. A decision was made to provide a microfilm copy of the AR in the Department of Justice (DOJ) and the U.S. Environmental Protection Agency s required format with an index of documents located on the microfilm roll to EG&G s Records Management. This information will be inserted into EG&G s Records Management database and compared with the AR microfilm roll. If EG&G s Records Management accepts the format of the AR microfilm as it exists, possible format changes to the existing AR microfilm or remicrofilming of the AR file by EG&G s Records Management will not be necessary.

Protected Area Decontamination Facility

Construction Activities on the Protected Area Decontamination Facility started in July. Relocation of the existing cargo containers and compaction testing is complete.

PLANNED SITEWIDE WORK FOR AUGUST:

Continue development of the Protected Area Interim Remedial Action Plan (PA/IRAP)

Continue construction activities on the Protected Area Decontamination Facility.

The quarterly update of the Administrative Record is scheduled for delivery to EPA and CDH during August. An update of the microfiche and index for OU 2, OU 4 and the Sitewide File is also scheduled for delivery to the four repositories, Rocky Flats Reading Room, Rocky Flats Environmental Monitoring Council, CDH and EPA during the month of August.

PROBLEMS: None

OPEN ITEMS: None

4.0 ROUTINE ENVIRONMENTAL MONITORING

The following generalized sampling schedule for Routine Environmental Monitoring is provided as requested in Section 210 of the IAG. Detailed quarterly monitoring schedules are prepared in advance and are available to EPA and CDH upon request from the Environmental Monitoring and Assessment Division, Environmental Management Department, and EG&G Rocky Flats, Inc. The schedules are lengthy; therefore, they are not reproduced here. An EPA- or State-authorized representative may make arrangements to observe fieldwork and to obtain split or duplicate samples.

SURFACE WATER AND SEDIMENTS:

Each of the Surface Water Stations (approximately 120 stations) are sampled monthly.

Each of the Sediment Stations (approximately 40 stations) are sampled quarterly.

Each surface water and sediment sample is analyzed for the following parameters:

| | |
|----------------|-----------------------|
| CLP TCL VOAs | Major Anions |
| CLP TAL Metals | Radionuclides |
| plus Cesium | Field Parameters |
| Lithium | pH |
| Molybdenum | Temperature |
| Strontium | Specific Conductivity |
| Tin | Dissolved Oxygen (DO) |
| | Turbidity |

SOILS:

Each of the Soil Stations (located at 1- and 2-mile radii from the plant center) are sampled annually.

Each soil sample is analyzed for plutonium and americium.

GROUNDWATER:

A total of 259 of the 371 total Groundwater Stations are sampled quarterly; this includes alluvial wells, bedrock wells, and pre-1986 wells. Approximately one third of the wells are monitored monthly for water levels.

Each groundwater sample is analyzed for CLP, TCL, VOAs, CLP, TAL, Metals, as well as the following parameters:

| <u>Radiochemical Parameters</u> | | <u>Inorganic Parameters</u> | <u>Field Parameters</u> |
|---------------------------------|---------|-----------------------------|-------------------------|
| Gross Alpha | Tritium | Nitrate/Nitrite | Dissolved Oxygen (DO) |
| Gross Beta | Lithium | Total Phosphorous | Specific Conductivity |
| Plutonium | Uranium | Ortho-Phosphate | Temperature |
| Americium | Cesium | Ammonia | Turbidity |
| Strontium | Tin | | pH |
| Molybdenum | | | |

5.0 CONTRACTOR/SUBCONTRACTOR IDENTIFICATION

Contractors and subcontractors being used on the Rocky Flats Plant Environmental Restoration Program and the work they are performing are identified on the following list as required by paragraph 13 of the IAG.

| OU | PROJECT | SUBCONTRACTOR | SUB-SUBCONTRACTOR | WORK DESCRIPTION | START DATE |
|----|-------------|-------------------|--------------------------------|---|------------|
| 1 | Assessment | Ebasco | Dames & Moore Stoller Corp. | OU1 RFI/RI fieldwork (drilling, well development/ completion, sampling) and RI report | Apr-91 |
| 2 | Assessment | Woodward-Clyde | | OU2 RFI/RI Work Plan (alluvial & bedrock); RI fieldwork (drilling, well completion/development), Technical Memorandum and RI Report | Sep-90 |
| 2 | Remediation | Riedel Env. Svcs. | | Fabricate/install/operate GAC/FTU system for South Walnut Creek Phase of OU2 IRA. | Apr-91 |
| 2 | Remediation | Weston | | IRAP, EA, Risk Assessment, and Historical Assessment for Woman Creek | Jun-91 |
| 2 | Remediation | Woodward-Clyde | | Conduct bench-scale tests on surface water | May-91 |
| 3 | Assessment | IT Corporation | CH2M Hill | Revegetate offsite lands | Jun-91 |
| 3 | Assessment | IT Corporation | | Implementation of OU 3 RFI/RI Work Plan | Jun-92 |
| 4 | Assessment | IT Corporation | Applied Environ. | OU4 RFI/RI Work Plan including Environmental Evaluation Plan and Quality Assurance Addendum | Sep-91 |
| 5 | Assessment | ASI | | Implementation of OU5 RFI/RI Work Plan | TBD |
| 6 | Assessment | Woodward-Clyde | | Implementation of OU6 RFI/RI Work Plan | TBD |
| 7 | Assessment | TBD | | Implementation of OU7 RFI/RI Work Plan | TBD |
| 8 | Assessment | ASI | | OU8 RFI/RI Work Plan including Environmental Evaluation Plan and Quality Assurance Addendum | Mar-92 |
| 9 | Assessment | TBD | | Implementation of OU9 RFI/RI Work Plan | TBD |
| 10 | Assessment | Ebasco | | OU10 RFI/RI Work Plan including Environmental Evaluation Plan and Quality Assurance Addendum | Jun-90 |
| 11 | Assessment | IT Corporation | | OU11 RFI/RI Work Plan including Environmental Evaluation Plan and Quality Assurance Addendum | Oct-91 |
| 12 | Assessment | Allied Environ. | | OU12 RFI/RI Work Plan including Environmental Evaluation Plan and Quality Assurance Addendum | Mar-92 |
| 13 | Assessment | IT Corporation | | OU13 RFI/RI Work Plan including Environmental Evaluation Plan and Quality Assurance Addendum | Mar-92 |
| 14 | Assessment | Ebasco | | OU14 RFI/RI Work Plan including Environmental Evaluation Plan and Quality Assurance Addendum | Apr-92 |
| 15 | Assessment | Ebasco | | OU15 RFI/RI Work Plan including Environmental Evaluation Plan and Quality Assurance Addendum | Apr-92 |

| O/U | PROJECT | SUBCONTRACTOR | SUB-SUBCONTRACTOR | WORK DESCRIPTION | START DATE |
|-----|----------------|----------------|-------------------|--|------------|
| SW | Adm. Record | QuantaLex | | Maintain IAG Administrative Record | Oct-90 |
| SW | Geolog. Char. | ASI | | Geologic Characterization, Data Base, and graphics | Feb-90 |
| SW | Monitoring | Ebasco | | Analytical Services for groundwater, surface water, and sediment | Dec-90 |
| SW | Monitoring | IT Corporation | | Analytical Services for groundwater, surface water, and sediment | Jul-90 |
| SW | Fld. Oversight | Ebasco | Stoller Corp. | ER field operations oversight | Oct-90 |
| SW | Treatability | Ebasco | | Sitewide treatability studies - Pu contaminated soils | Apr-90 |
| SW | Treatability | Woodward-Clyde | | Technical evaluation of sitewide treatability studies | Jul-90 |
| SW | QA | Ebasco | SAIC | Develop and implement quality assurance program and field operations oversight | Dec-90 |
| PM | Support | Ebasco | Stoller Corp. | Program Management Support | Feb-90 |